

**A NEW SPECIES OF DRYWOOD TERMITE FROM SOUTHWESTERN  
NORTH AMERICA (ISOPTERA: KALOTERMITIDAE)**

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Field surveys of insects associated with the shrub jojoba, *Simmondsia chinensis* (Link) C. K. Sneed., conducted by Dr. John Pinto and Saul Frommer of the University of California, Riverside, revealed a heretofore unknown species of drywood termite of the genus *Incisitermes* Krishna. The habits of this new species differ from most of the other *Incisitermes* in that it infests living plants (as do some species of *Neotermes* Holmgren). The primary gallery extends through the living trunk and stems and occasionally into dead limbs. Other southwestern *Incisitermes* are most frequently found within dead portions of cacti, shrubs, and trees. Colonies of the new species have also been found within living sugar-bush, *Rhus ovata* Wats., in close proximity to infested jojoba. Only on a single occasion has this new species been found solely within dead wood.

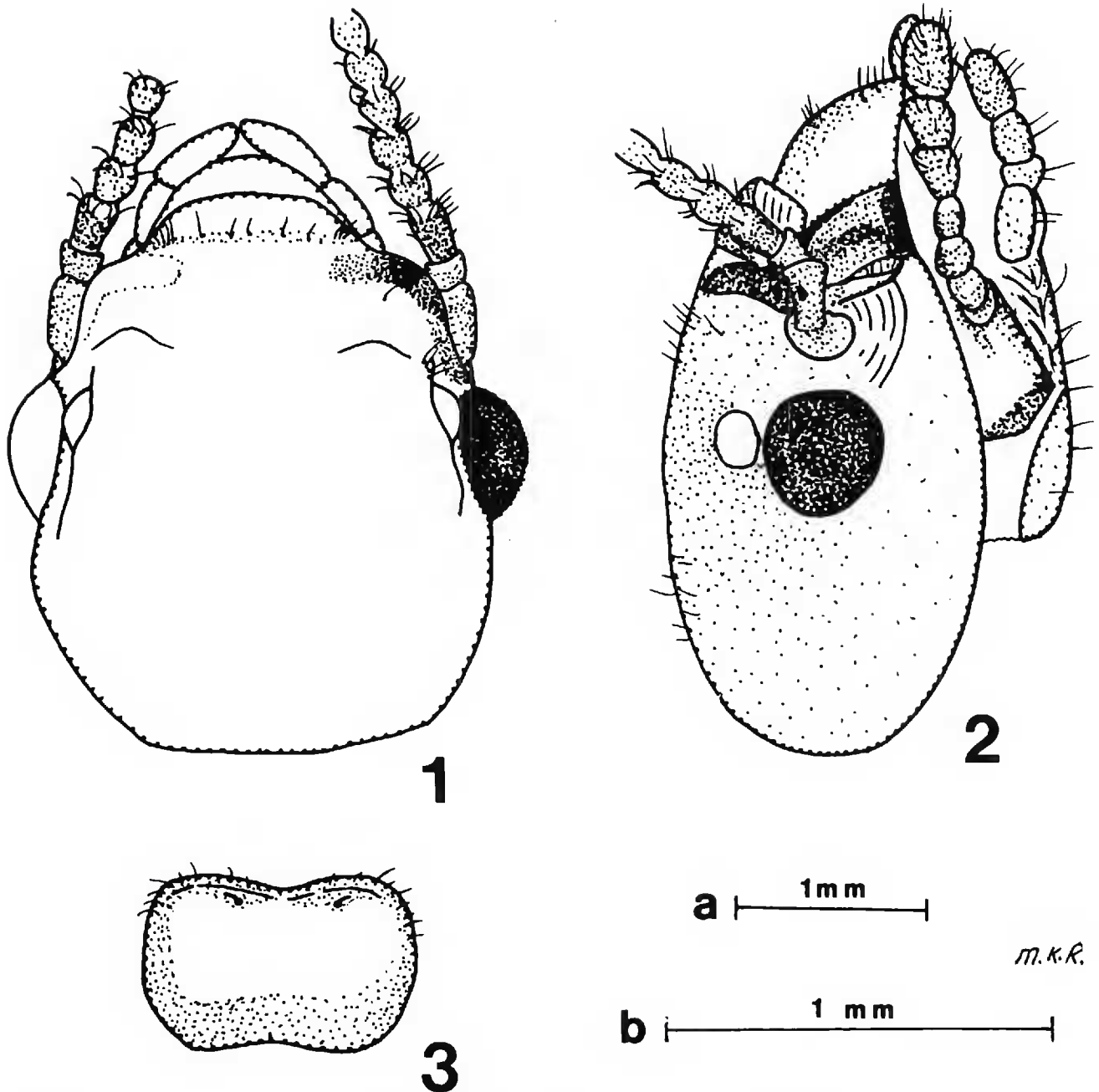
***Incisitermes fruticavus*, new species**  
(Figs. 1-9)

Description based on 27 imagoes and 84 soldiers preserved in alcohol.

*Imago*.—*Head*.—Epicranium and genae light yellowish brown with a few stiff, short bristles. Frons yellowish brown grading to sordid brown anteriorly with a row of evenly spaced stiff bristles along the anterior margin and with broad brownish black ridge extending from anterior dorsal margin of antennal sockets medially (Figs. 1, 2). Clypeus whitish with translucent margins. Labrum large, brownish, strongly convex with a few stiff, yellowish bristles. Compound eyes large, black, less than width of eye distant from ventral margin of the head and one-fourth width of eye distant from antennal sockets. Ocelli nearly touching compound eyes; one-half length of eyes in diameter. Scape, pedicel and flagellum light yellowish brown; flagellum with 14-16 segments (ca. 2.7 mm long), about 2.1× as long as head capsule. Basiflagellomere slightly more elongate than other segments and darker yellowish brown.

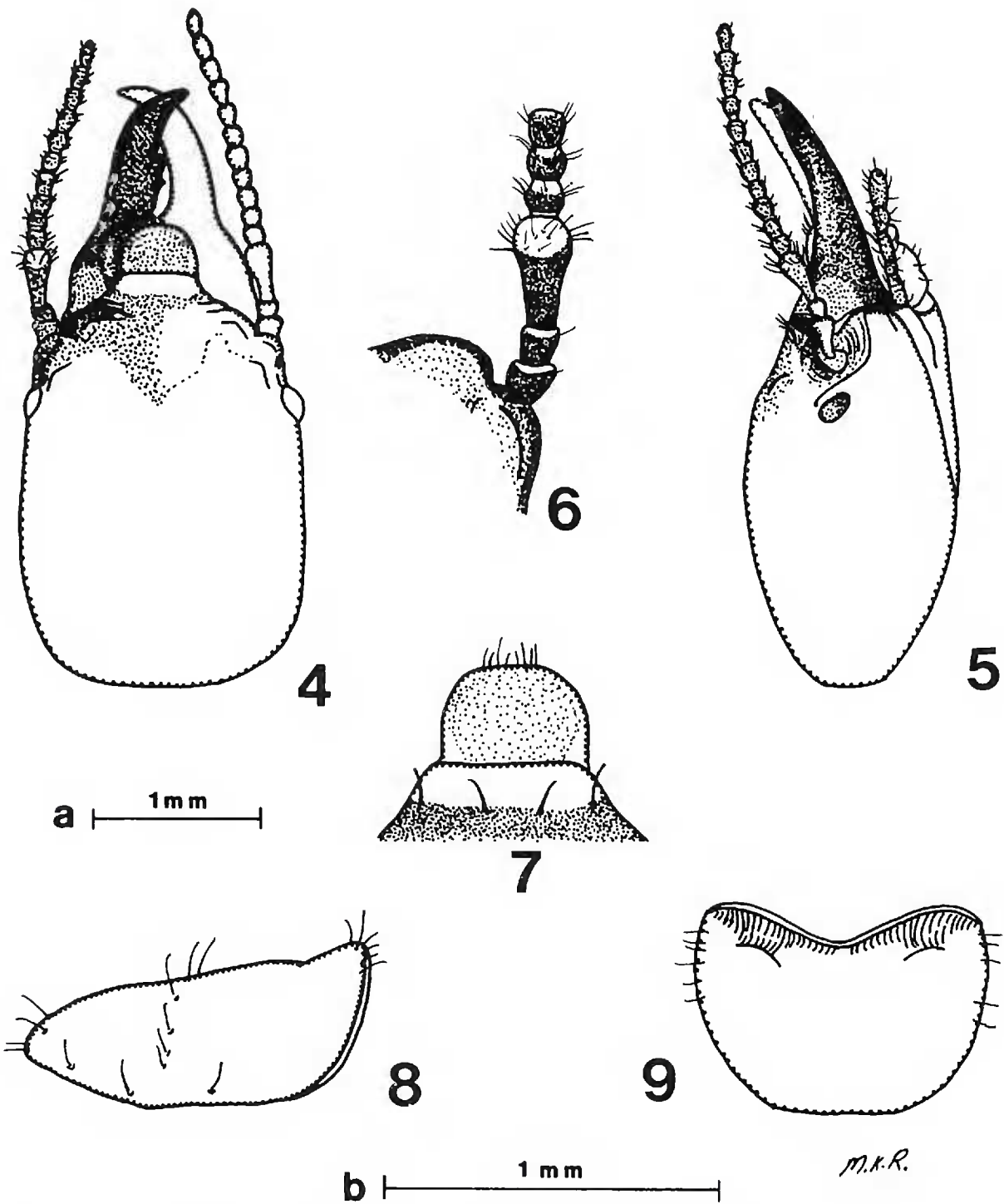
*Thorax*.—Dorsum light yellowish brown. Pleural region whitish. Pronotum 1.6× broader than long with shallow emarginations anteriorly and posteriorly (Fig. 3). Tibial spurs 3:3:3 and arolia absent. Wing membrane hyaline, veins along anterior margin light brown.

*Abdomen*.—Dorsum light yellowish brown. Venter whitish with pale yellowish tinge.



Figs. 1-3. *Incisitermes fruticavus*, new species, structural details of imago morphotype. 1, dorsal aspect of head. 2, right lateral aspect of head. 3, dorsal aspect of pronotum. Scale a—Fig. 3; Scale b—Figs. 1-2.

Measurements in mm (N = 27)	Mean	S.D.	Range
Length of head to base of mandibles	1.29	0.06	1.17-1.39
Width of head	1.23	0.03	1.15-1.30
Diameter of eye	0.33	0.02	0.29-0.37
Distance from eye to ventral margin	0.25	0.03	0.19-0.33
Length of ocellus	0.17	0.02	0.13-0.19
Length of right basiflagellomere	0.16	0.02	0.13-0.23
Width of right basiflagellomere	0.11	0.01	0.10-0.12
Maximum length of pronotum	0.89	0.05	0.81-1.00
Width of pronotum	1.45	0.06	1.31-1.58
Length of body with wings	14.93	1.17	13.20-18.84



Figs. 4-9. *Incisitermes fruticavus*, new species, structural details of soldier holotype. 4, dorsal aspect of head. 5, right lateral aspect of head. 6, dorsal aspect of right antennal ridge and basal segments. 7, dorsal aspect of clypeus and labrum. 8, right lateral aspect of pronotum. 9, dorsal aspect of pronotum. Scale a—Figs. 4, 5, 9; Scale b—6-8.

Measurements in mm (N = 27)	Mean	S.D.	Range
Length of body without wings	7.61	0.79	6.08-9.12
Length of forewing from humeral suture	11.94	0.83	10.64-14.88
Width of forewing	3.63	0.23	3.28-4.16

*Soldier.*—*Head.*—Epicranium and genae light reddish brown with a few

stiff, short bristles. Frons light reddish brown grading to dark brown anteriorly with several long hairs along anterior margin. Antennal sockets with dorsal margin forming a protruding blackish crest (Figs. 4–6) and anterior dorsal margin forming a broad blackish ridge extending medially. Clypeus whitish. Labrum brownish  $1.5\times$  broader than long with numerous short and 3–4 longer hairs on dorsal apex (Fig. 7). Base of mandibles dark reddish brown grading to black anteriorly. Compound eyes small, elliptical and translucent,  $1.5\times$  width of eye distant from margin of antennal socket. Pedicel and scape blackish brown. Basiflagellomere  $2.17\times$  longer than wide, length equal to next 3 segments, dark reddish brown basally fading brownish tinge in distal fourth, distal third enlarged with numerous long brownish hairs (Fig. 6). Flagellum with 10–12 segments (holotype = 12), extending 2–3 segments beyond the tip of mandibles.

*Thorax*.—Pronotum dark reddish brown; dorsum and pleural areas with faint reddish brown tinge. Pronotum as broad as head, anterior margin emarginate and reflexed dorsad, lateral margins smoothly curved.

*Abdomen*.—Dorsum and venter faint sordid reddish brown.

Measurements in mm (N = 84)	Mean	S.D.	Range	Holotype
Length of head to base of mandibles	2.38	0.16	1.92–2.81	2.29
Width of head	1.74	0.09	1.50–1.92	1.71
Length of left mandible	1.53	0.10	1.27–1.73	1.50
Width of postmentum at widest point	0.63	0.04	0.56–0.75	0.58
Width of postmentum at narrowest point	0.35	0.04	0.27–0.46	0.37
Length of postmentum	1.47	0.17	1.23–1.88	1.44
Length of right basiflagellomere	0.36	0.03	0.28–0.44	0.35
Width of right basiflagellomere	0.16	0.01	0.14–0.19	0.16
Maximum length of pronotum	1.18	0.10	0.92–1.56	1.19
Width of pronotum	1.72	0.10	1.46–1.92	1.67
Ratio of head length:width	1.37	0.10	1.10–1.59	1.34
Ratio of basiflagellomere length:width	2.17	0.20	1.72–2.64	2.19
Ratio of pronotum length:width	0.69	0.05	0.59–0.77	0.71

*Holotype* soldier, 1.1 mi N Aguanga, CA,  $116^{\circ}52'W$   $33^{\circ}27'N$ , 658 m (2160 ft), January 3, 1978, collected from jojoba, *S. chinensis* by M. K. Rust and R. H. Scheffrahn.

Paratype soldiers (collected from jojoba unless otherwise noted); 16 soldiers from same colony as holotype and 3 and 7 soldiers from other colonies, same locality and date as holotype, M. K. Rust and R. H. Scheffrahn; 5.6 mi S Sage, CA, Riverside Co.,  $116^{\circ}54'W$   $33^{\circ}31'N$  701 m (2300 ft); 2 soldiers, 28 April 1977; 3 soldiers, 5 May 1977; 2 soldiers, 10 May 1977, M. K. Rust;

2 soldiers, 16 December 1977, C. Barbour and R. E. Wagner; 2, 4, 5, 7 and 15 soldiers from separate colonies and 13 soldiers from sugarbush, *R. ovata*, 19 February 1978, M. K. Rust and R. H. Scheffrahn.

Paratype imagoes (collected from jojoba); 5.6 mi S Sage, CA, Riverside Co., 116°54'W 33°31'N 701 m (2300 ft), 21 imagoes 30 June 1977, M. K. Rust and D. A. Reiersen. Six imagoes differentiated in laboratory from colony collected on 19 February 1978 by M. K. Rust and R. H. Scheffrahn.

Holotype, 3 paratypes, and 3 paratype imagoes in collection of American Museum of Natural History, New York; 3 paratypes and 3 paratype imagoes in collection of both California Academy of Sciences, San Francisco and United States National Museum, Washington, D.C.; 74 paratypes and 18 paratype imagoes in collection of University of California, Riverside.

Since soldiers and alates of many *Incisitermes* species generally lack single diagnostic characters, *I. fruticavus* was named for the peculiar habit of infesting living shrubs (*frutex* = L., shrubs and *cavus* = to hollow out).

In the past 30 years only two papers have dealt with the systematics of North American termites. Snyder (1949) in his world catalog determined several synonyms of southwestern United States species. In his generic revision of the family Kalotermitidae, Krishna (1961) established several new genera. Three species of southwestern termites, *Kalotermites arizonensis* Snyder, *K. banksi* Snyder and *K. minor* Hagen, were transferred from *Kalotermites* Hagen to *Incisitermes* Krishna.

The soldier of *I. banksi* (cotype of *Kalotermites lighti* Snyder = *banksi* was based on two soldiers, neither specimen was designated as holotype by Snyder (1926)) is smaller than that of *I. fruticavus* with length of the head to the base of the mandibles 1.82 mm. The 9–10 flagellomeres extend barely beyond the tips of the mandibles in *I. banksi*. The basiflagellomere ratio is 1.84 in *I. banksi* and 2.17 in *I. fruticavus*. The imagoes of *I. fruticavus* can also be easily distinguished from those of *I. banksi*, they are larger, lighter colored, and lack arolia. The imagoes of *I. minor* with the reddish head and thorax and dark brown abdomen can be readily distinguished from those of *I. fruticavus*. The soldiers of *I. minor* have longer head capsules and shorter antennae than *I. fruticavus*. The *Incisitermes* imago most similar to *I. fruticavus* is *I. schwarzi* (Banks). Arolia are present and the anterior margin of the eye nearly touches the antennal socket in *I. schwarzi* and the anterior margin of the eye is clearly separated from the antennal socket in *I. fruticavus*. The head of the soldier of *I. schwarzi* is more rounded and shorter than that of *I. fruticavus*. Basiflagellomere ratio of *I. schwarzi* is ca. 1.78.

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### NOTICE

*Beltsville Agricultural Research Center Symposium V, Biological Control In Crop Production.*—Science and Education Administration, Agricultural Research, Beltsville, MD, May 18–21, 1980. Contact: E. M. Dougherty, Chairman, Publicity Committee, BARC Symposium V, Building O11A, Beltsville Agricultural Research Center-West, Beltsville, MD 20705.